



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,947	04/16/2004	Stephen K. Pinto	17146-008001	1609
26161	7590	12/12/2007	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			GAMI, TEJAL	
ART UNIT		PAPER NUMBER		
2121				
MAIL DATE		DELIVERY MODE		
12/12/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/826,947	PINTO ET AL.
	Examiner	Art Unit
	Tejal J. Gami	2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 October 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-28 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 10/01/2007.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____.

DETAILED ACTION

1. This office action is responsive to an AMENDMENT entered October 01, 2007 for the patent application 10/826947.

Status of Claims

2. Claims 1-28 were rejected in the last Office Action dated March 29, 2007. As a response to the March 29, 2007 office action, Applicant has Amended claims 1, 2, 4-6, 9, 11, 12, 14 and 28.

Claims 1-28 are now pending in this office action.

Double Patenting

3. Claim 1 of this application conflict with claim 28 of Application No. 10/826630, respectively. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims

are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 28 of copending Application No. 10/826630.

This is a provisional obviousness-type double patenting rejection.

Claim 1 of this instant application	Claim 28 of the application 10/826,630
Claim 1: A machine-base method comprising in connection with a project generating a predictive model based on historical data about a system being modeled,	Claim 1: A machine-based method comprising in connection with a project in which a user generates a predictive model based on historical data about a system being modeled: selecting variables having at least a predetermined level of significance from a

	<p>pool of potential predictor variables associated with the data, to form a population of predictor variables, extending the population to include non-linear interactions of variables, extending the population to include linear and non-linear extensions with remaining previously excluded variables, generating a possible model of the extended population of variables using a subsample of the data, determining whether the model generalizes to the data other than the subsample, if so, applying the possible model to all of the data to generate a final model, and cross-validating the final model using random portions of the data.</p>
enabling the user to validate a model development process with a predictive model between at least two subsets of the	Claim 28: The method of claim 1 also enabling the user to invoke at least one validated model development process to produce a final model enabling the use

historical data, and interacting with the system being modeled based on the predictive model.	to observe the performance of the final model on at least two independent subsets.
---	--

Note the comparisons above, respectively Claim 1 of the instant application are not patentably distinct from claim 28 of the application 10/826,630 because as shown from the table above claim 28 of application 10/826,630 fully shows the limitations of claim 1 of the instant application. For example, claim 1 of the instant application is broader in scope and does not mention a number of limitations such as "selecting variables having at least a predetermined level of significance from a pool of potential predictor variables associated with the data, to form a population of predictor variables, extending the population to include non-linear interactions of variables, extending the population to include linear and non-linear extensions with remaining previously excluded variables, generating a possible model of the extended population of variables using a subsample of the data, determining whether the model generalizes to the data other than the subsample, if so, applying the possible model to all of the data to generate a final model, and cross-validating the final model using random portions of the data" as recited in claim 28 of the application 10/826,630. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have claim 1 of the instant application be clearly shown by claim 28 of application 10/826,630.

As to dependent claims 2-5 are deficient in that they are derived from the independent claims as noted above.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Lazarus et al. (U.S. Patent Number: 6,430,539)

As to independent claim 1, Lazarus discloses a machine-base method comprising in connection with a project generating a predictive model (e.g. creates a predictive model) based on historical data about a system being modeled (e.g., based on historical data) (see Col. 4, Lines 11-16), enabling the user to validate a model development process with a predictive model (e.g., validation used to confirm model performance) (see Col. 4, Lines 25-26) between at least two subsets of the historical data (e.g., clusters/segments) (see Col. 4, Lines 11-28; and Col. 34, Lines 20-34), and interacting with the system being modeled based on the predictive model (e.g., lift chart) (see Col. 35, Lines 32-38).

As to independent claim 6, Lazarus discloses a machine-based method comprising in connection with a process (e.g., data processing) (see Col. 1, Line 30), generating a predictive model (e.g. creates a predictive model) based on historical data

about a system being modeled (e.g., based on historical data) (see Col. 4, Lines 11-16) using a validated model development process (e.g., validation and analysis of the segment predictive models done to confirm model performance) (see Col. 11, Lines 21-23) to enable automatic transformations of variables of the data (e.g., variables) (see Col. 11, Lines 13-23), automatic generation of a predictive model (e.g. creates a predictive model) (see Col. 4, Lines 11-16), and automatic generation of performance measures of the predictive model (e.g., confirm model performance) (see Col. 4, Lines 25-26) on at least two independent datasets of historical data (e.g., clusters/segments) (see Col. 4, Lines 11-28; Col. 11, Lines 63-67; and Col. 33, Lines 33-67), and interacting with the system being modeled based on the predictive model (e.g., lift chart) (see Col. 35, Lines 32-38).

As to dependent claim 2, Lazarus teaches teaches the method of claim 1 in which the user interface display project goals enabling the user to assess model project performance wherein the project goals comprise at least one of:

 cumulative lift over an interval of interest, degree of monotonicity, or concordance scores (e.g., cumulative lift time interval) (see Col. 11, Lines 16-25; and Col. 34, Lines 20-64).

As to dependent claim 3, Lazarus teaches the method of claim 2 also including identifying that the model does not produce at least a predefined degree of lift for at least one of the validation datasets (e.g., lift rank) (see Col. 35, Lines 14-23).

As to dependent claim 4, Lazarus teaches the method of claim 3 also including enabling a user to choose interactively at least one model development criterion (e.g.,

selective criteria) change or transformation or interaction of variables to improve a fit of the model (e.g., highest correlation) (see Col. 5, Lines 46-49; and Col. 37, Lines 49-65).

As to dependent claim 5, Lazarus teaches the method of claim 4 also including graphically displaying and comparing measures of performance for the validation dataset and a training dataset (e.g., validation to confirm model performance) (see Col. 4, Lines 20-26).

As to dependent claim 7, Lazarus teaches the method of claim 6 also including generating measures of the performance of the model for the two datasets (e.g., clusters/segments), the performance measures being generated separately percentile by percentile (e.g., percentile ranking) (see Col. 35, Lines 49-55).

As to dependent claim 8, Lazarus teaches the method of claim 6 also including graphically displaying and comparing measures of performance for the two datasets (e.g., ranking) (see Col. 34, Lines 21-23; and Col. 35, Lines 49-55).

As to dependent claim 9, Lazarus teaches the method of claim 6 also including persistently storing the validated model development process and a validated model for computing propensities for at least one target outcome variable, the propensities serving as indices of a score for non-historical data (see Col. 35, Lines 49-55).

As to dependent claim 10, Lazarus teaches the method of claim 6 also including providing a user interface (e.g., lift chart; models) (see Col. 34, Lines 20-64; and Col. 35, Lines 32-38) for assessing project goals against performance (e.g., goal) (see Col. 1, Lines 35-37).

As to dependent claim 11, Lazarus teaches the method of claim 6 also including providing a user interface for selecting at least one subset of the historical data in addition to a training subset (see Col. 4, Lines 20-25).

As to dependent claim 12, Lazarus teaches the method of claim 6 providing a user interface for displaying the performance of the model for at least two subsets of the historical data for an interval of interest (e.g., time interval) (see Col. 4, Lines 16-26).

As to dependent claim 13, Lazarus teaches the method of claim 6 enabling a user to choose interactively (e.g., selective criteria) at least one transformation or interaction of variables to improve the model validation process (e.g., highest correlation) (see Col. 5, Lines 46-49; and Col. 37, Lines 49-65).

As to dependent claim 14, Lazarus teaches the method of claim 6 determining whether the model generalizes to the data other than a subsample, and, if so, applying a possible model to all of the data to generate a final model, and cross-validating the final model using random portions of the data (e.g., cross-segment) (see Col. 11, Lines 8-23).

As to dependent claim 15, Lazarus teaches the method of claim 6 providing a user interface that enables the user to select at least one validation dataset and invoke a model process validation method (e.g., selective criteria) (see Col. 37, Lines 49-65).

As to dependent claim 16, Lazarus teaches the method of claim 6 providing a user interface that enables the user to point and click to cause display of information about the model process validation (e.g., computer) (see Col. 6, Lines 41-67).

As to dependent claim 17, Lazarus teaches the method of claim 16 in which the information about the model process validation includes at least one of:

a statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) with a link to the statistical report chart (e.g., statistical model) (see Col. 4, Lines 25-28), a cumulative lift chart with a link to the cumulative lift chart, and a non-cumulative lift chart with a link to the non-cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 18, Lazarus teaches the method of claim 17 in which invocation of the link to the statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) causes display of the statistics of model process validation (e.g., validation of statistical model) (see Col. 4, Lines 25-28).

As to dependent claim 19, Lazarus teaches the method of claim 17 in which invocation of the link to the cumulative lift chart causes display of a cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 20, Lazarus teaches the method of claim 17 in which invocation of the link to the cumulative lift chart causes display of a non-cumulative lift chart (e.g., segment lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 21, Lazarus teaches the method of claim 17 in which a user is enabled to choose interactively at least one performance criterion (e.g., selective criteria) change or transformation or interaction of variables to improve the model validation process (e.g., highest correlation) (see Col. 5, Lines 46-49; and Col. 37, Lines 49-65).

As to dependent claim 22, Lazarus teaches the method of claim 6 also including providing a user interface that enables the user to select at least one machine automated model development process applied to the entire dataset for a validated model process (e.g., selective criteria) (see Col. 37, Lines 49-65).

As to dependent claim 23, Lazarus teaches the method of claim 6 also including providing a user interface that enables the user to point and click to cause display of information about the performance of the validated model process applied to the entire set of historical data (e.g., computer) (see Col. 6, Lines 41-67).

As to dependent claim 24, Lazarus teaches the method of claim 23 in which the information about the model performance for two independent data subsets includes at least one of the following:

a statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) with a link to the statistical report chart (e.g., statistical model) (see Col. 4, Lines 25-28), a cumulative lift chart with a link to the cumulative lift chart, a non-cumulative lift chart with a link to the non-cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 25, Lazarus teaches the method of claim 24 in which the invocation of the link to the statistical report card (e.g. statistical information) (see Col. 3, Lines 50-54) causes display of the statistics of model process validation (e.g., validation of statistical model) (see Col. 4, Lines 25-28).

As to dependent claim 26, Lazarus teaches the method of claim 24 in which the invocation of the link to the cumulative lift chart causes display of a cumulative lift chart (e.g., cumulative lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 27, Lazarus teaches the method of claim 24 in which the invocation of the link to the cumulative lift chart causes display of a non-cumulative lift chart (e.g., segment lift chart) (see Col. 34, Lines 20-50).

As to dependent claim 28, Lazarus teaches the method of claim 6 also including storing a final model and the model process validation results persistently (e.g., stored in databases) (see Col. 6, Lines 41-67).

Response to Arguments

8. Applicant's amendment and arguments filed October 01, 2007 have been fully considered. The amendment does not overcome the original art rejection and the arguments are not persuasive. The following are the Examiner's observations in regard thereto.

Applicant Argues:

The applicant disagrees. Lazarus uses a conventional approach in which a specific model is validated using a validation subset of the historical data. In contrast, claim 1 recites that what is validated is not the specific model, but rather the "model development process". Some implementations, for example, validate the model process, as well as the sequence of dimension reductions and the model method. Once those are validated, the 'validated' model is discarded and all of the historical data is used automatically create a new model, the finalized model, which is used for scoring. Claim 6 similarly refers to "a validated model development process", which distinguishes the claim from Lazarus' validation of a specific model that is then used for scoring. Lazarus did not describe and would not have made obvious the combination of features of claims 1 and 6.

Examiner Responds:

The claims and only the claims form the metes and bounds of the invention. Applicant's implementations are not presented as claimed limitations. Applicant's arguments have been fully considered but they are not deemed persuasive. Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification; see MPEP 2111 [R-1] Interpretation of Claims-Broadest Reasonable Interpretation. See Col. 4, Lines 11-16 where Lazarus teaches creating (e.g., developing) predictive models and see Col. 35, Lines 49-55 for scoring. Under such considerations, the prior art teaches the claims as written.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abu El Ata et al. (U.S. Patent Number: 7,035,786) teaches system and method for multi-phase system development with predictive modeling.

C Bounsaythip, E Rinta-Runsala "Overview of Data Mining for Customer Behavior Modeling" - Finland: VTT Information Technology, Research Report TTE1-18, 2001.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tejal J. Gami whose telephone number is (571) 270-1035. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Vincent
Supervisory Patent Examiner
Tech Center 2100

TJG
TJG

R. D. Hartman
RONALD HARTMAN, JR.
PRIMARY EXAMINER
12/9/2007